PROGRESS

OF

MEDICAL SCIENCE.

MEDICINE.

UNDER THE CHARGE OF
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On the Treatment of Aneurisms by Injections of Gelatin.—GRENET and PIQUARD (*Arch. Gén. de Méd.*, 1901, 78, Ann., n. s.v. 641) consider carefully the question of the value of the treatment of aneurism according to the method of Lancereaux by the injection of solutions of gelatin. The study is based upon one personal observation and a careful analysis of 100 cases in literature. They divide the cases into four groups: In the first, including eleven cases, the observations are without value with regard to the result of treatment. In the second group of five cases there were grave sequels which may have been due to the treatment. In a third group of twenty-five cases the treatment had no apparent influence. In the fourth group there was more or less temporary or permanent improvement—forty-nine cases.

In a discussion of these cases, however, they come to the conclusion that the relation of these apparently good results to treatment is extremely doubtful. After inquiring into the evidence concerning the absorption and the coagulating power of gelatin injected subcutaneously, and into the dangers of such methods, they come to the following conclusions:

1. Injections of gelatin are indicated, according to Lancereaux, only in saccular aneurisms; nevertheless, according to Bourdillon, their favorable action is not limited to the encouraging of the deposition of clots, but may be exercised also even in fusiform aneurisms.

2. The pain and fever which often follow injections result from the action of the gelatin itself.

3. The possibility of embolism and of massive coagulation is not positively demonstrated.

4. It is possible, if gelatin passes into the blood without undergoing transformation, that the injections may, in certain voluminous aneurisms of

large size with feebly resistant walls, determine a deleterious increase in pressure.

5. Despite the large number of patients who have seemed to be relieved as a result of the injections it is impossible to draw positive conclusions from the statistics, inasmuch as the observations have been for the greater part insufficient, and the subjects have been rarely followed after the conclusion of treatment.

6. Experiments as well as clinical facts do not permit conclusions as to the value of treatment. It seems practically proven that gelatin injected subcutaneously is absorbed, but it is not known whether it is absorbed as gelatin. Even if one assumed that it passes into the circulation without modification it would yet be necessary, in order to learn its therapeutic action, to study not only its immediate influences, but also its later effects, which are, perhaps, as a comparison with peptone would suggest, entirely different.

7. The study of the action of gelatin in subcutaneous injections is to be reconsidered from a clinical stand-point, and is as yet incomplete experimentally.

The Experimental Production of Hepatic Lesions of Splenic Origin.—CHAUFFARD and CASTAIGNE (*Arch. de méd. exp. et d'anat. path.*, 1901, xiii., 321) have made an interesting set of experiments demonstrating the possibility of the passage of various harmful and innocuous substances from the spleen to the liver, with subsequent localization in that organ and the production, sometimes, of pathological changes limited to the liver and spleen. These observations are of interest in connection with the recent studies of Collet and Gallavardin upon primary splenic tuberculosis with secondary hepatic involvement which have recently been referred to in this JOURNAL. They appear to have proved from an experimental stand-point (1) that solid particles introduced into the parenchyma of the spleen may reach the liver and become localized there; and (2) that tuberculosis limited to the liver may follow a primary localized splenic tuberculosis. By a series of experiments they were able to demonstrate the fact that, when injected into the splenic pulp, carmine reached the liver only after several days, while, when the injection is made into the splenic artery, the substance is to be found in the liver in twenty-four hours.

Three interesting series of experiments were made with intrasplenic inoculation of tuberculosis in guinea-pigs. In the first series six animals were inoculated with a culture of human tuberculosis and all killed inside of about two months. In all instances the lesions were purely splenic. In a second series six guinea-pigs were inoculated with tuberculous products from the spleen of a subject dead of general tuberculosis of extreme virulence. In all of these instances a more or less general tuberculosis developed. In a third series six guinea-pigs received an intrasplenic injection of several drops of a triturate of the tuberculous spleen of a guinea-pig dead of experimental tuberculosis. In practically all of these cases there were found, after one month to a month and a half, caseous tuberculosis of the spleen and fresh embryonal tuberculosis of the liver. In no case were any tuberculous lesions found elsewhere. They believe that these results show that, according to individual conditions of virulence of the bacilli, splenic tuberculosis may remain limited to this organ or extend to the liver in a strictly splenohepatic type, or, passing onward, become disseminated.

Nervous Complications and Sequelæ of Malarial Fever.—BUSQUET (*Rev. de méd.*, 1891, xxi., 441) reports the case of a patient who had four distinct attacks of malarial fever in three months, each of which was associated with interesting nervous phenomena. In November, 1897, the patient, while in Madagascar, had a pernicious comatose paroxysm. After his recovery he began to suffer from girdle pains, which, however, yielded to treatment with quinine. In January, 1898, he began again to have attacks of intermittent fever with a rapidly developing anæmia, as a result of which he was sent to Marseilles. On May 16th the patient had a chill. There was marked paresis of the right arm and leg, the right arm showing a rhythmical tremor which persisted during effort, and as a result of which he found it difficult to feed himself. The right leg when flexed showed spontaneous epileptoid tremor, with oscillations of great amplitude; general sensation good. The right patellar reflex was greatly exaggerated and accompanied by a clonus. The left was slightly exaggerated; there was ankle clonus on the right side; the plantar reflex absent on the right, increased on the left. There was incontinence of urine. The blood showed malarial parasites, both of the acute cycle and crescentic. (The observer states only that amœboid and crescentic forms were found.—W. S. T.) Under quinine the fever and all the nervous symptoms entirely disappeared. In four days most of the symptoms had yielded. In two weeks the treatment was stopped. In five days the nervous symptoms reappeared, and three days later incontinence of urine. On June 10th there was a febrile paroxysm, and on the following day incontinence of feces. Under treatment by quinine the symptoms again cleared up in a few days, though the incontinence of urine lasted for eight days. Treatment by quinine was stopped after ten days. Four days later the incontinence of urine appeared, and on the following day there was another febrile paroxysm. He was then given a hypodermic injection of 2 grammes of hydrochlorate of quinine, and afterward a gramme a day for eight days, then 0.5 up to July 12th. Three days later fever and incontinence of urine again developed, which yielded once more in a few days to quinine. On July 26th the patient left the hospital feeling well. The authors believe that the nervous phenomena were probably due to the direct irritation of the central nervous system by the parasites in the circulation.

Polymyositis.—LEPINE (*Rev. de méd.*, Paris, 1901, xxi., 426) adds an interesting case to the few instances in literature. The patient was a man, aged fifty-nine years, who entered his clinic on January 24, 1901. He was a cabinetmaker, of good family and personal history, and excellent habits. Eight months before entry he began to suffer from intermittent pains in the head, of moderate intensity, with occasional lancinating pains in the left side, in the mammillary region.

Three months before entry the patient discovered a swelling in the right temporal region, a small, œdematous, slightly tender, but rather hard tumor.

This lasted three or four days, during which there was considerable difficulty in chewing. After several days this disappeared, and a similar swelling appeared on the right, extending, however, to the eyelids so as to cause complete closure. After fifteen days these symptoms disappeared. At this time extremely severe pains appeared in the lumbar region, especially on movements of flexion and rotation. Six days before entry there appeared on the dorsal surface of his right forearm a small œdematous swelling, which was associated with sensations of pricking. From this the œdema spread over the entire forearm and dorsal surface of the hand. The patient was thin and pale. The forearm showed a glistening œdema, somewhat reddened, owing perhaps to applications of tincture of iodine, hard, but neither hot nor tender. A softer œdema was present on the back of the hand. Nothing was to be made out on physical examination of the back. The spleen was enlarged, and there was an anæmia of two million red blood-corpuscles; the colorless corpuscles were apparently normal; the hæmoglobin relatively diminished. Cultures from the blood were negative. The urine was free from albumin. The patient was treated by aspirine. The lumbar pains disappeared, while the swelling of the forearm progressively diminished in the course of several days.

The author discusses the term dermatomyositis. He prefers the term polymyositis to dermatomyositis, inasmuch as the cutaneous eruption observed in some cases is not a necessary symptom. He does not consider Lorentz justified in separating dermatomyositis from polymyositis hemorrhagica.

The Clinical Diagnosis of Infarctions of the Kidney.—R. SCHMIDT (*Wiener klin. Wochenschrift*, 1901, xiv., 451 and 486), after calling attention to the fact that most observers have held that the diagnosis of infarction of the kidney is rarely possible, reviews seven cases, five out of the literature and two from the clinic of Prof. Neusser, in Vienna, in which the symptoms were carefully observed during life, necropsy proving the nature of the lesion. After considering the various symptoms he comes to the following conclusions with regard to differential diagnosis:

1. In every case of renal colic it would appear to be advisable first to settle the question as to whether it is of intrarenal (increased pressure, necrosis) or of extrarenal—that is, ureteral (passageverlegung).

2. Renal pain of intrarenal origin remains in general more localized in the actual renal region; the kidney, especially in infarction, is exquisitely tender on pressure, the pain is more continual; it is sometimes accompanied by very intense albuminuria of sudden onset or with a sediment similar to that in nephritis.

3. Colic pain of extrarenal—that is, ureteral—origin has a greater tendency to radiate in the course of the ureters; there is tenderness of the ureters on pressure; this may result in an acute hydronephrosis; the pain is more intermittent.

4. Renal colics of intrarenal origin may be caused by:

(*a*) Torsion of the vascular pedicle in wandering kidney.
~~(*b*) Sudden congestion in richly vascular~~ malignant tumors.
(*c*) Chronic nephritis with an acute inflammatory exacerbation.
(*d*) Renal infarct.

5. With regard to differentiation within these groups one should consider that pain on pressure over the kidneys is greater and more commonly present in renal infarct than in chronic nephritis.

High pulse tension speaks against infarct.

Onset of the attack of colic during rest in bed is common in infarct. A relation between the attack of colic and mechanical insults often occurs in cases of torsion of the vascular pedicle and in acute exacerbations of chronic nephritis.

An apoplectic onset of the pain at full intensity is especially common in infarct.

Marked hæmaturia is common in the acute exacerbations of chronic nephritis, but rare in infarct.

Intense albuminuria of sudden onset and rapid disappearance, without abnormal sediment, occurs in infarct.

6. Enteroptosis is an unfavorable complication from a prognostic standpoint in renal infarct; it favors the onset of reflex vomiting.

7. Decubitus on the healthy side or in bilateral lesions on the less diseased side causes an increase of pain in painful renal infarction.

8. In total closure of the renal artery there may be no abnormal appearances in the urine (complete shutting off of the kidney).

9. Oliguria or even anuria occurs, especially in bilateral renal infarcts; vesical tenesmus is not present.

On the Albuminoid Metabolism in Pernicious Anæmia and Bothriocephalus Anæmia.—ROSENQVIST (*Berl. klin. Wochenschrift*, 1901, xxxviii., 666) states that after the investigations of Bauer it was generally believed that in all anæmias there was an increased disintegration of albumin, but von Noorden and Lipman-Wulff showed that anæmia as such was not necessarily associated with pathological increase in the albuminoid metabolism; that if such occurred in an anæmic patient it spoke for the existence of other deleterious influences. In pernicious anæmia, however, Strümpell, Quincke, and Eichhorst have shown that an increased disintegration of albumin may occur, though most of the observations have scarcely been made with the exactness attained by modern methods. For this reason the author has studied eighteen cases of bothriocephalus anæmia and three of cryptogenetic pernicious anæmia in the clinic of Runeberg, in Helsingfors. In eleven out of fifteen cases of bothriocephalus anæmia, before the institution of anthelmintic treatment, there was a well-marked increase in the albuminoid metabolism. This was present not only in the cases with fever, but also in those without. Immediately after treatment and the disappearance of the worm the picture changed entirely, and there was, on the other hand, a well-marked nitrogenous retention. This was observed in all cases, even in those in which the diet and general conditions after the disappearance of the worm were not the best. In some cases there may be a retention of nitrogen even during the presence of the worm. The fact, however, that in all cases after the disappearance of the worm there was a well-marked increase in the albuminoid retention justifies the conclusion that in every case of bothriocephalus anæmia there are periods of pathologically increased albuminoid disintegration. This albuminoid disintegration is far too extensive to be dependent entirely upon the destruction of red blood-corpuscles; it must be associated with changes in the other nitrogenous tissues of the body. The deleterious substance which produces these changes the author believes to be a poison produced by the parasite. As a general rule, the changes in the albuminoid metabolism go hand-in-hand with fluctuations in number of red blood-corpuscles, but exceptions to this rule occur. In seven cases in which the number of erythrocytes before the treatment was essentially constant there was a well-marked elevation in the albuminoid disintegration. We are thus, he believes, not justified in concluding, from a pause in the progress of the anæmia, that the poison is no longer active. In a certain number of cases the change for the better after treatment does not occur until some days after the expulsion of the worm. In five instances six to eleven days elapsed before essential change was to be noticed. This he believes to be due to the fact that the poison has not yet been eliminated. As a general rule, in these instances the elevation of temperature which commonly disappeared after expulsion of the worm remains present until the evidence of the presence of the poison, the increased albuminoid disintegration, and the anæmia begin to change for the better. In bothriocephalus anæmia the elevation of temperature stands apparently in direct relation with the poison produced by the worm; it may be regarded as a fever of absorption. In a certain number of cases Rosenqvist has found that, after expulsion of the worm, during the period in which the most marked increase in the number of blood-corpuscles begins, at a time of almost total nitrogenous retention, the quantities of phosphorus purin increased, and might even reach three times the previous figures despite the fact that the patient was on a purin-free diet. Whether this has anything to do with the increased destruction of nuclei of the erythrocytes is a question which cannot yet be decided.

In cryptogenetic pernicious anæmia the observations were essentially similar to those in bothriocephalus anæmia. Periods of marked increase of albuminoid disintegration alternated sometimes with those of distinct nitrogenous retention. These conditions varied from day to day; here, also, there was a certain parallelism between the changes in the nitrogen metabolism and those in the condition of the blood; also the elevations of temperature occurred only during the periods of pathological albuminoid disintegration.

He concludes "that bothriocephalus anæmia is a toxic anæmia. In every case of this blood disease there is, at certain periods, an increased albumin disintegration which is brought about by a poison produced by the tapeworm. This increased albuminoid metabolism is, however, not always to be made out in a given case, for despite the presence of the tapeworm there may be periods of well-marked nitrogenous retention.

"A comparison between the results found in bothriocephalus anæmia and those in pernicious anæmia from other cause shows that there is no essential difference between the albuminoid metabolism in the two diseases.

"My investigations, therefore, are strongly in support of the theory that cryptogenetic pernicious anæmia is also a toxic anæmia."

Puncture of the Sacral Canal by the Epidural Method.—CATHELIN (*La Presse Médicale*, June 15, 1901, p. 281) describes a new line of treatment for the relief of the intense pain of various diseases by the injection of cocaine into the sacral canal. The technique is described as being extremely simple. Looking at the skeleton it will be seen that the vertebral canal ceases near the lower extremity of the sacrum. Its lower end is covered in by the sacrococcygeal ligament. The spinous processes of the fourth and fifth sacral vertebræ are absent, so that there is normally a triangular space with the apex upward in this situation, bounded on each side by the fourth and fifth sacral tubercles, which represent the rudimentary articular surfaces. It is at the apex of this triangle that the cocaine injections are made.

For the injection an ordinary syringe of about 10 c.c. capacity is used. The needle should be six centimetres long, with a diameter of seven-tenths of a millimetre, and a bevelling of three millimetres at the point.

The patient is placed either in the knee-elbow position or on the side. After thorough disinfection of the sacral region, and with the usual precautions, the finger is pressed down the median line of the sacrum until it falls into the triangular depression described above. The needle is introduced about at the apex of this triangle and exactly in the median line. It is passed in obliquely upward and forward, and if inserted properly it will be felt to pass through the sacro-coccygeal ligament, by which it is firmly gripped.

The quantity of cocaine to be injected is four centigrammes. For the purpose a solution of the strength of 1 to 100, or, better, 1 to 200, should be used. The cocaine, it is to be remembered, does not enter the subdural or subarachnoid spaces, but is injected into the epidural space. It is not supposed to exert its effect by direct action on the nerve roots, but is absorbed by osmosis by the rich plexus of veins in the vertebral canal, and appears to act by dulling the general nervous sensibility.

This treatment is recommended for the relief of the following painful conditions: painful neuralgias of the lower extremities, sciatica, lumbago, the lightning pains of tabes, intercostal neuralgia, and gastric crises. It is further recommended for the pain in inoperable carcinoma of the rectum, for fissure in ano, for painful labor, and for painful affections of the joints of the lower extremities.

On Scleroderma.—Neumann (*Deutsch. Arch. f. klin. Med.*, 1901, lxx., 168) describes five carefully studied cases of scleroderma. In two of these there was a goitre; in four the condition was ushered in by rheumatoid pains, in three the diagnosis of chronic rheumatism having been made at the onset. In four there was marked pigmentation; in several so much so that the appearance of the patient was almost that of a subject of Addison's disease; the pigmentation, however, was never present on the conjunctiva or mucous membrane. In one instance, two years before death, the sclerodactylia became so marked that actual mutilation of the phalanges resulted. About the joint of the last phalanx, without any sign of local irritation, there developed, quite as in ainhum, a contraction of the white skin, which resulted in a dry necrosis of the nail and the tip of the finger as well as of the spongy end of the last phalanx. The course of this necrosis lasted several months, and was associated with severe pain. The end of the phalanx was black, dry, and mummified, and ended in a slowly developing scar formation. Out of the base of the scar protruded the very tender end of the bone.

In discussing the observations the author calls attention to the striking likeness between the extensive scleroderma and Addison's disease. In scleroderma, however, the pigmentation of the conjunctiva and mucous membrane of the mouth is absent, while in Addison's disease the doughy swelling and thickening of the skin, with associated pigmentation in various places and absolute loss of pigment elsewhere, are never present. Moreover, the loss of strength in true Addison's disease and the more rapid course are characteristic of most, if not all, the cases.

Neumann is inclined to believe that the condition represents a chronic intoxication, probably of a non-bacterial nature.

The prognosis he considers extremely grave. Although improvements and recoveries are occasionally spoken of, the possibility of the latter he considers very slight, most cases in which recovery is supposed to have occurred having been imperfectly reported.

With regard to treatment, Neumann has obtained little result from internal medication. On the other hand, in his three last cases marked improvement has followed the persistent use of hot-air treatment.

On Occult Hemorrhages into the Stomach.—BOAS (*Deutsch. med. Wochenschrift*, 1901, xxvii., 315) mentions the fact that if gastric hemorrhages are of very slight extent they may be entirely overlooked, especially in an acid medium, and he has been struck by the fact that, with careful methods, blood may not infrequently be demonstrated in specimens of gastric juice in which, macroscopically, it might never have been suspected. He prefers Weber's modification of the guaiac test, and states that special care should be taken that the tincture should always be freshly prepared. This he believes to be the most delicate method, especially if the ethereal solution, after the addition of tincture of guaiac and oil of turpentine, is shaken out in water and chloroform, and the mixture allowed to stand for a considerable time. The gastric juice to be examined should be taken by means of the stomach-tube and with great care. The vomitus often contains blood from other regions. The observations of Boas have been limited to eighty-three cases, including a variety of different conditions. He divides his results into three classes: 1. Those in which hemorrhages were constantly absent. 2. Those in which they occasionally occurred. 3. Those in which they were always found. The first group included all the cases of neuroses as well as those of gastritis anacida, with one exception, and, further, a case of subacidity, and all cases of superacidity, supersecretion, and benignant dilatation. To the second class belong the cases of ulcer of the stomach or secondary pyloric stenosis following ulcer. Blood was occasionally found also in a case of duodenal stenosis, and also in a case of syphilis of the stomach, as well as in an instance of carcinomatous stenosis of the large intestine. In the third group fell one case of hypertrophic stenosis, and all the cases of carcinoma of the stomach. In every one of these latter blood was invariably found, although in the majority it was not to be made out on gross examination.

The clinical importance of this seems to be that blood is especially likely to be present under three conditions—in typical ulcer, in tumors with a tendency to ulceration, and, finally, in conditions of well-marked chronic passive congestion. In combinations of these conditions the tendency is, of course, correspondingly greater. It is, of course, evident that the determination of small quantities of blood in the stomach does not give us a diagnostic sign, but Boas believes it is an important addition to our methods of diagnosis. It may help us to distinguish doubtful cases of ulcer from gastric neuroses, and if it be a question of carcinoma the great frequency of the presence of blood in this condition is in sharp contrast to the fact that in chronic anacid gastritis, as well as in gastric neuroses, no blood has been found. Inasmuch, however, as ulceration which occurs in the majority of all cases of carcinoma is not a very early symptom, the presence of blood in most instances will hardly help us to an early diagnosis. Boas further raises the question as to whether the constant loss of small quantities of blood may not play an important part in the development of the so-called carcinoma cachexia.

SURGERY.

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The Advantages and Disadvantages of Drainage after Abdominal Operations.—ROBB (*Journal of the American Medical Association*, July 6, 1901) reports two series of cases, in the first of which there were 114 and in the second 108 consecutive unselected abdominal sections without a death. In a paper published in 1890 the author summarizes the indications for drainage as follows: 1. To provide a means of escape for the serous oozing which follows the separation of broad adherent surfaces. 2. To guard against septic peritonitis from retained pus from the tube, ovary, or other viscus. 3. To remove fluid in cases of persistent capillary hemorrhage. 4. To provide against hemorrhage in cases of hysterectomy when the pedicle is dropped. 5. To drain the peritoneal cavity and starve out the disease in cases of chronic or tubercular peritonitis. The following objections to the insertion of drainage-tubes have been formulated by Welch: "1. They tend to remove bacteria which may have gotten into a wound from the bactericidal influence of the tissues and animal juices. 2. Bacteria may travel by continuous growth or in other ways down the sides of the drainage-tubes, and so penetrate into a wound which they otherwise would not enter. We have repeatedly been able to demonstrate this mode of entrance into a wound of the white staphylococcus found so commonly in the epidermis. The danger of leaving any part of the drainage-tube exposed to the air is too evi-